

## About the generic membership of *Hadena decipiens* ALPHÉRAKY, 1895

(Lepidoptera, Noctuidae)

by

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**Abstract:** The generic membership of *Hadena decipiens* ALPHÉRAKY, 1895 is discussed, and a new combination, *Calamia decipiens* (ALPHÉRAKY, 1895) **comb. nov.** is established.

*Hadena decipiens* ALPHÉRAKY, 1895 was described from the Hangay Mountains in Northern Mongolia ("Urga") and occurs in Northern Mongolia and the mountains of Southern Siberia. It was transferred to the genus *Eremobia* STEPHENS, 1829 by HAMPSON (1908). Its genitalia morphology proves its membership to the *Calamia* genus-group, which belongs to the tribe Apameini BOISDUVAL, 1828.

Later, POOLE (1989) and KONONENKO (2005) reported it as a member of the genus *Eremobia* (the authors were right when considering it to be close to the *Calamia* genus-group, as the genus *Eremobia* was treated incorrectly [being well isolated and forming its own genus-group (ZILLI & al., 2005), it included species from the *Calamia* genus-group, e.g. *deccerti* (HAMPSON, 1908)]. As a member of the genus *Sidemia* the given species was reported by VARGA (1982) and GYULAI & RONKAY (1999), and was mistakenly attributed to the genus *Phoebophilus* STAUDINGER, 1888 (KOZHANCHIKOV, 1923; KLJUTSHKO, 1992; VOLYNKIN, 2007) owing to its external resemblance with several species of the genus [e.g. *Ph. amoenus* STAUDINGER, 1888 (col. pl. 1: 6)], that truly belongs to the tribe Dypterygiini FORBES, 1954 (FIBIGER & HACKER, 2007).

According to fundamental works of ZILLI & al. (2005) and ZILLI et al. (2009) the *Calamia* genus-group includes following genera: *Sidemia* STAUDINGER, 1892, *Hampsonicola* RONKAY, ZILLI & FIBIGER, 2009 (repl. name of *Hedina* RONKAY, ZILLI & FIBIGER, 2005), *Calamia* HÜBNER, [1821], *Crypsedra* WARREN, 1911 and *Staurophora* REICHENBACH, 1817. ZILLI & al. (2005) give lists of all palearctic members of the genus-group, however "*Eremobia decipiens*" is missed. Genitalia study of "*Eremobia decipiens*" as well as other members of the *Calamia* genus-group, inhabiting Southern Siberia, has proved its undoubted membership to the genus *Calamia*.

*Calamia decipiens* (ALPH.) **comb. nov.** and *Calamia tridens* (HUFNAGEL, 1766) (figs. 1-2; col. pl. 1: 1-2) are similar in genitalia morphology, which, according to our research, makes the hybridization between the two species possible in spite of a month difference in their flight periods: *C. tridens* (HUFN.) flies from the end of July till the end of August, and *C. decipiens* (ALPH.) is on the wings from the end of August till the end of September. The hybrid, found in the Altai, has the wings' shape and the pattern similar to those of *C. decipiens* (ALPH.), when the colouration of its wings is green as in *C. tridens* (HUFN.) (col. pl. 1: 3). Genitalia structure of this specimen is very similar to that of *C. tridens* (HUFN.) (fig. 3).

***Calamia decipiens* (ALPHÉRAKY, 1895) **comb. nov.** (figs. 4, 6; col. pl. 1: 4-5)**

*Hadena decipiens* ALPHÉRAKY, 1895, Dt. Ent. Z. Iris 8: 193 (type-locality: N. Mongolia, Hangai Mts. ("Urga")).

Synonymy:

*Phoebophilus sajanus* A. BANG-HAAS, 1906, Dt. Ent. Z. Iris 20: 133, pl. 5: 8 (type-locality: E. Sayan Mts., Munku-Sardyk Range («Sajan, Munku»)).

**Imago Redescription:** Labial palps slender, with short third segment. Proboscis well-developed. ♂ antenna finely biserrate with fasciculate cilia. Head, thorax and abdomen are dark, grey or brownish grey. Thorax has sparse white scales. Ground colour of forewing dark, grey or brownish-grey. Subbasal line strongly wavy, white, ending before it reaches the anal margin of the wing. Crosslines are wavy, white. Subterminal line white, broken. Terminal line blackish, interrupted at veins. Claviform stigma arcuate, white-bordered. Orbicular and reniform stigmata are the colour of the ground plan, white-bordered. Cilia grey, with white spots opposite veins. Hindwing brownish grey, with its paler medial and basal areas. Discal spot crescent-shaped, slender, obscure. Cilia brownish grey.

♂ **genitalia:** Uncus boat-shaped, though very broad. Tegumen short and wide. Vinculum rounded, U-like. Juxta shield-like. Valva narrow, elongated, subapically slightly constricted. Apical part of cucullus tapered ventrally. Corona present. Saccus apically broadly rounded from dorsal edge to almost ventral margin. Digitus short, lightly wrinkled, apically slightly acute, with two short ventral processes. Aedeagus long, curved, dorsally membranous in a narrow patch. Carina of aedeagus with a prominent, triangular dorsal spine. Vesica globular, with a large and short subbasal cornutus; distal part of vesica curved dorsally.

♀ **genitalia:** Ovipositor short, apically acute. Antrum wide. Basal part of ductus bursae with half-cylindrical sclerotised plate. Appendix bursae short and wide. Corpus bursae elongate, tear-shaped. Signa absent.

**Diagnosis:** *C. decipiens* (ALPH.) is different externally from other generic members by the brownish-grey colouration of wings and a well-defined contrast pattern. ♂♂ genitalia differ from those of *C. tridens* (HUFN.) by the narrower uncus basally, the apically acute digitus, bearing a pair of ventral processes, the ventrally tapered apex of the valve and the wider and less sclerotized carina of the aedeagus. ♀♀ genitalia are well distinguished from those of *C. tridens* (HUFN.) by slenderer and longer apophyses anteriores, the sclerotized margin of the ostium bursae, convex backwards [in *C. tridens* (HUFN.) the margin of the ostium bursae is concave forwards medially], the shorter and wider ductus bursae, the larger appendix bursae, the shorter corpus bursae.

**Distribution:** S. Siberia (Altai Mts., Sayan Mts., Transbaikalia) (VARGA, 1982; KONONENKO, 2005; VOLYNKIN, 2007), Mongolia (VARGA, 1982; GYULAI & RONKAY, 1999).

**Check list of the *Calamia* genus-group of Southern Siberia** (synonymy cited after KONONENKO, 2005)

*Sidemia* STAUDINGER, 1892

- *spilogramma* RAMBUR, 1871 (= *christophi* ALPHÉRAKY, 1888)

*Hampsonicola* RONKAY, ZILLI & FIBIGER, 2009

- *deccerti* (HAMPSON, 1908) (= *pseudotrachea* KRULIKOVSKY, 1909; *deckerti* DRAUDT, 1934, missp.)

*Calamia* HÜBNER, [1821]

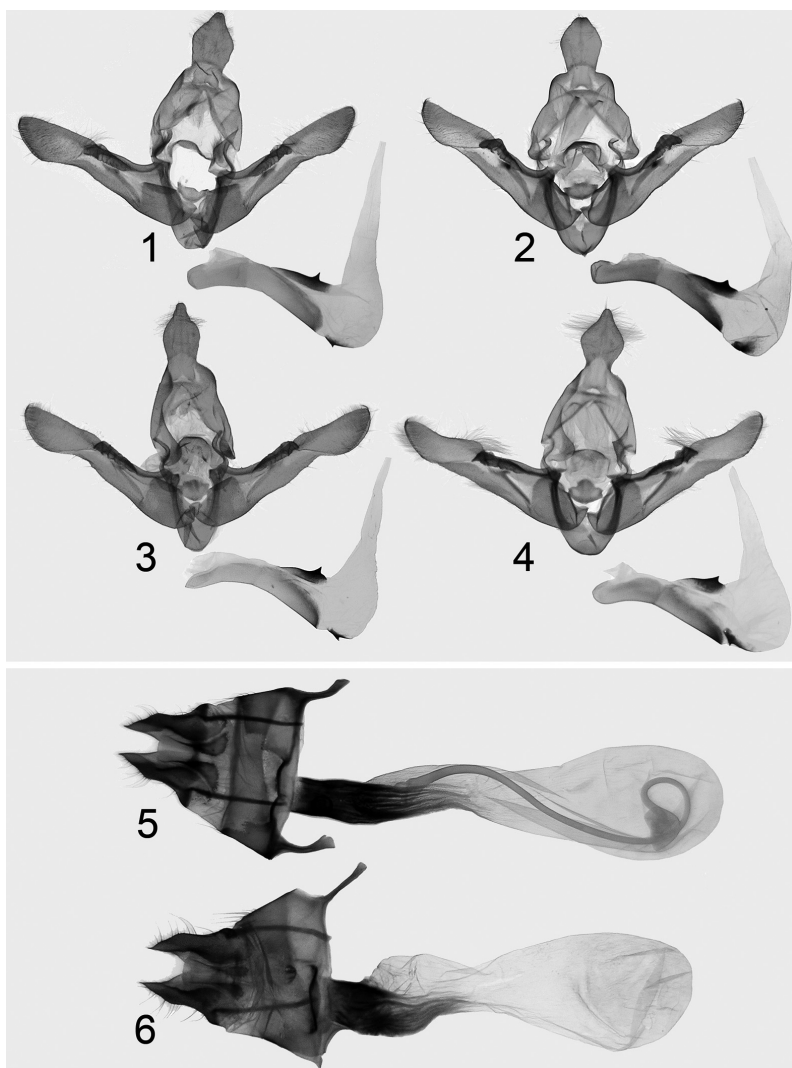
- *tridens* (HUFNAGEL, 1766)
- *decipiens* (ALPHÉRAKY, 1895) **comb. nov.** (= *sajanus* A. BANG-HAAS, 1906)
- Staurophora REICHENBACH (Leipzig), 1817
- *celsia* (LINNAEUS, 1758)

#### References

- FIBIGER, M. & H. HACKER (2007): Noctuidae Europaeae **9**, Amphipyrae, Condicinae, Eriopinae, Xyleninae (part). - Ent. Press, Sorø.
- GYULAI, P. & L. RONKAY (1999): The Noctuidae (Lepidoptera) material collected by two Hungarian expeditions to Mongolia in 1996 and 1997. - Esperiana **7**: 687-713, Schwanfeld.
- HAMPSON, G. F. (1908): Catalogue of the Lepidoptera Phalaenae in the British Museum **7**. - Taylor and Francis, London.
- KLJUTSHKO, Z. F., V. S. KONONENKO & K. MIKKOLA (1992): Systematic list of noctuid moths (Lepidoptera, Noctuidae) of Dahurian Reserve. Nasekomye Daurii i copredel'nyh territoriy: 33-46. - Moscow.
- KONONENKO, V.S. (2005): Noctuidae Sibiricae **1**. (An annotated Check list of the Noctuidae (s.l.) (Lepidoptera, Noctuoidea: Nolidae, Erebidae, Micronoctuidae, Noctuidae) of the Asian part of Russia and the Ural region). - Entomological Press, Sorø.
- KOZHANTSCHIKOV, W. V. (1923): Materialien zur Macrolepidopteren Fauna des Minussinsk-Bezirk (Sibirien, Ienissey Gouv.). - Jahrbuch des Martjanov'schen Staatmuseums in Minussinsk **1** (1): 1-50. - Minussinsk.
- POOLE, R.W. (1989): Lepidopterorum Catalogues (New Series) **118** (1): 1-500 (Noctuidae). - E.J. Brill, Leiden.
- VARGA, Z. (1982): Noctuidae (Lepidoptera) aus der Mongolei, IV. Subfamilie Amphipyrae. - Folia Ent. Hung. **18** (1): 205-227, Budapest.
- VOLYNKIN, A.V. (2007): About finds of rare and new noctuid moths (Lepidoptera, Noctuidae s.l.) species for Russian Altai. - Altai zoological journal **1**: 17-20, Barnaul.
- ZILLI, A., RONKAY, L. & M. FIBIGER (2005): Noctuidae Europaeae **8**: 1-323 (Apameini). - Entomological Press, Sorø.
- ZILLI, A., VARGA, Z., RONKAY, G. & L. RONKAY (2009): A Taxonomic Atlas of the Eurasian and North African Noctuoidea **3**: 1-393, (Apameini 1). - Heterocera press, Budapest.

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Figs. 1-6: Genitalia of *Calamia* spp. 1: *C. tridens* (HUFNAGEL, 1766), ♂, Russia, Altai Mts., Aktash vill. env., Slide AV0325 VOLYNKIN. 2: *C. tridens* (HUFNAGEL, 1766), ♂, same locality, Slide AV0468 VOLYNKIN. 3: Hybrid ♂ of *C. tridens* (HUFNAGEL, 1766) and *C. decipiens* (ALPH.), same locality, Slide AV0398 VOLYNKIN. 4: *C. decipiens* (ALPHÉRAKY, 1895), same locality, Slide AV0321 VOLYNKIN. 5: *C. tridens* (HUFNAGEL, 1766), ♀, same locality, Slide AV0467 VOLYNKIN. 6: *C. decipiens* (ALPHÉRAKY, 1895), ♀, Russia, Altai Mts., Chuya steppe, prep. VOLYNKIN.

#### Legend to colour plate 1, p. 233

**12:** *Rhyacia junonia* (STAUDINGER, 1881), ♂, 14.VII.1983, Altai, Katunsky Range, 15 km SE of Katanda, tundra, 2300 m, V. V. DUBATOLOV leg. (SZMN). **13:** *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♂, 13.VII.2008, Russia, Altai Republic, Kosh-Agach distr., 8 km ESE of Tashanta vill., 2690 m, tundra-steppe. On light, VOLYNKIN A. V. & NAKONECHNY A. N. leg. (AVB). **14:** *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♀, 13.VII.2009, Russia, Altai Republic, Kosh-Agach distr., 15 km NE of Tashanta vill., Chuya steppe, Zhalspakkoby hole, Yustyt riv. valley, l. bank of Yustyt riv., steppe, 2300 m. On light. VOLYNKIN A.V., ČERNILA M. & NAKONECHNY A.N. leg. (AVB). **15:** *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♂, 13.VII.2008, Russia, Altai Republic, Kosh-Agach distr., 8 km ESE of Tashanta vill., 2690 m, tundra-steppe. On light, VOLYNKIN A. V. & NAKONECHNY A. N. leg. (AVB). **16:** *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♀, 21.VII.2007, W. Mongolia, Bayan-Ulgij aimak, Kobdo-gol river valley 20 km SW Tsengel somon, 1800 m. Larix light forest on a steppe slope. YAKOVLEV R.V. & GUSKOVA E.V. leg. (AVB). **17, 18:** *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♂♂, 15.-16.VII.2010, W. Mongolia, Govi-Altai aimak, Hara-Adzragyn-Nuruu Mts., Najitvaryn-Sajr riv. valley (under stream), 1700-2000 m. 45°52'N, 95°30'E. YAKOVLEV R. V. & GUSKOVA E. V. leg. (AVB).



# Colour plate 1



1: *Calamia tridens* (HUFNAGEL, 1766), ♀, 20.VII.2009, Russia, Altai Rep., Ulagan distr., Aktash vill., 1350 m, 50°19'N, 87°35'E, bottom of southern steppe stony slope, on light. VOLYNKIN A.V. leg. (coll. A. VOLYNKIN, Barnaul=AVB). 2: *Calamia tridens* (HUFNAGEL, 1766), ♂, 18.VII.2010, same locality. VOLYNKIN A.V. leg. (AVB). 3: Hybrid ♂ of *Calamia tridens* (HUFNAGEL, 1766) and *Calamia decipiens* (ALPHERAKY, 1895), ♂, 12.-21.VII.2010, same locality. VOLYNKIN A.V. leg. (coll. A. VOLYNKIN, Barnaul). 4: *Calamia decipiens* (ALPHERAKY, 1895), ♂, 6.VIII.[19]03, W. Mongolia [Russia, SE Altai, W. Tuva Rep.], Kemchik river. GR-ZHIMAILO [leg.] (coll. ZISP, St.-Petersburg). 5: *Calamia decipiens* (ALPHERAKY, 1895), ♂, 18.IX.2010, Russia, Altai Rep., Ongudai distr., Inya vill., on light. VOLYNKIN A. V. & ČERNILA M. leg. (Coll. A. VOLYNKIN, Barnaul). 6: *Phoebeophilus amoenus* STAUDINGER, 1888, ♂, 21.VII.2003, Kyrgyzstan, Transalai Range, 2 km S. Tulparkel lake, N. of Pik Lenina Mt., on light. DUBATOLOV V. V. & NIKOLAEV E. V. leg. (Coll. SZMN, Novosibirsk). 7: *Rhyacia junonia* (STAUDINGER, 1881), ♂, [E. Kazakhstan, foothills of Saur Mts., Zaisan] Saisan / Coll. N. FILIPJEV (ZISP). 8: *Rhyacia junonia* (STAUDINGER, 1881), ♀, 12.-21.VIII.2010, Russia, Altai Republic, Ulagan distr., Aktash vill., bottom of southern steppe stony slope, 1400 m. 50°19'N, 87°35'E. On light-trap, VOLYNKIN A. V. leg. (AVB). 9-11: *Rhyacia junonia* (STAUDINGER, 1881), ♂♂, 12.-15.VII.2009, Russia, Altai Republic, Ulagan distr., Kuraisky range, 7 km NE of Aktash vill., tundra/talus border, 2600 m. 50°29'N, 87°36'E. On light-trap, VOLYNKIN A. V., ČERNILA M. & NAKONECHNY A.N. leg. (AVB).

## About the taxonomic status of *Rhyacia junonia schistochroa* VARGA, 1973

(Lepidoptera, Noctuidae)

ANTON V. VOLYNKIN

**Abstract:** *Rhyacia junonia junonia* (STAUDINGER, 1881) and *Rh. junonia schistochroa* VARGA, 1973 are flying subsympatrically in the Russian Altai. Both subspecies are well distinguished in genitalia morphology and have no significant variability of distinguishing characters in the intergradation area. According to this and to the stability of external characters and different ecology, *Rhyacia schistochroa* VARGA, 1973 **stat. nov.** is raised to specific level.

The infraspecific structure of *Rhyacia junonia* (STAUDINGER, 1881) from Central Asia was studied by Z. VARGA (1973). The taxon *schistochroa* VARGA, 1973 was described as the subspecies of *Rh. junonia* (STGR.) from Mongolia. In later works (GYULAI & RONKAY, 1999; KONONENKO, 2005) all specimens of *Rh. junonia* (STGR.) have been recorded from Mongolia and Southern Siberia as well as the given subspecies. However, considerable distinguishing characters in ♂ genitalia of *Rh. junonia schistochroa* VRG. and *Rh. junonia junonia* (STGR.), and the fact that both taxa inhabit the Altai Mountain Country [the nominative subspecies is described from Zaisan - foothills of the Saur Mountains, Eastern Kazakhstan) (STAUDINGER, 1881), while *schistochroa* VRG. is known from many parts of the Russian and Mongolian Altai), made it necessary to study the populations of *Rh. junonia* (STGR.) s.l. of the Russian Altai more thoroughly.

The research of genitalia morphology in a number of specimens from different localities proves that *Rh. junonia junonia* (STGR.) is widely distributed in western and central areas of the Russian Altai, and *Rh. junonia schistochroa* VRG. occurs in its central and south-eastern areas. The both taxa occur within the same mountain ranges (the Kuraisky range), with the distance between their known collecting sites no less than 60 km. Absence of isolation, as well as the absence of distinguishing characters in genitalia structure in the intergradation zone proves the species rank of *schistochroa* VRG. Distinctions in their ecology also proves that *Rh. junonia* (STGR.) and *Rh. schistochroa* VRG. **stat. nov.** are different biological species: *Rh. schistochroa* VRG. occurs in more arid biotopes than *Rh. junonia* (STGR.) does. *Rhyacia schistochroa* VRG. inhabits various highland steppes (the Chuya Steppe, the southern macro-slope of the Kuraisky Range, the Sailugem Range, a series of mountain-steppe localities of the Mongolian Altai) and tundra-steppes (crests of the Sailugem Range, a number of tundra-steppe localities in highlands of the Mongolian Altai). *Rhyacia junonia* (STGR.), except for steppe slopes in the median mountain belt (the Kuraisky Range), is common in mesophilous and hygromesophilous alpine meadows and tundras (crests of the Kuraisky and the Katunsky Ranges).

Collections, from which specimens have been examined, are abbreviated as follows:

AVB - Coll. ANTON VOLYNKIN, Barnaul, Russia;

SZMN - Zoological Museum of the Institute of Systematics and Ecology of Animals Siberian Branch of RAS Novosibirsk, Russia.

ZISP - Zoological Institute of RAS, St.-Petersburg, Russia.

### *Rhyacia junonia* (STAUDINGER, 1881) (figs. 1, 3; col. pl. 1: 7-12)

*Agrotis junonia* STAUDINGER, 1881, Stettin. Ent. Z. 42: 415 (Type locality: "Saisan-Gebiet").

Material from Altai mountain country examined: 1 ♂, Saisan. Coll. N. FILIPJEV (coll. ZISP); 6 ♂♂, 2 ♀♀, 12.-15.VII.2009, Russia, Altai Republic, Ulagan distr., Kuraisky Range, 7 km NE Aktash vill., tundra/talus border, 2600 m, 50°29'N, 87°36'E. By light-trap. VOLYNKIN A.V., ČERNILA M. & NAKONECHNY A.N. leg. (coll. A. VOLYNKIN); 1 ♀, 12.-21.VIII.2010, Russia, Altai Republic, Ulagan distr., Aktash vill., southern steppe stony slope, 1350 m. By light. 50°19'N, 87°35'E, VOLYNKIN A.V. leg. (coll. A. VOLYNKIN); 1 ♂, 14.VII.[19]83, Katunsky Range, 15 km SE Katanda vill., 2300 m, tundra. V. V. DUBATOLV leg. (coll. SZMN). Slides AV0409 ♂, AV0414 ♂, AV0411 ♀, AV0413 ♀.

**Distribution:** Siberian-Central Asian species. SE Europe, Kazakhstan, Turkmenistan, Kyrgyzstan, NW China. (FIBIGER, 1997; KONONENKO, 2005; LEHMANN & BERGMANN, 2005).

**Note:** Genitals of this species have been incorrectly illustrated by FIBIGER (1997) - preparations of specimens from Mongolia, belonging to *Rh. schistochroa* VRG. have been used.

### *Rhyacia schistochroa* VARGA, 1973 **stat. nov.** (figs. 2, 4; col. pl. 1: 13-18)

*Rhyacia junonia schistochroa* VARGA, 1973, Mitt. Münch. Ent. Ges. 63: 208 (Type locality: Mongolia, "Uvs aimak: 4 km OSO vom Pass Ulaan davaa zwischen dem See Örög nuur und der Stadt Ulaangom, 1700 m").

Material from Altai mountain country examined: 2 ♂♂, 7.-8.VII.2008, Russia, Altai Republic, Kosh-Agach distr., Kuraisky Range, 5 km E. Chagan-Uzun vill., 2130 m, VOLYNKIN A. V. & NAKONECHNY A. N. leg.; 1 ♂, 12.VII.2009, Russia, Altai Republic, Kosh-Agach district, Chuya steppe, 6 km SE of Chagan-Uzun village, steppe, 1800 m, 50°04'N, 88°24'E. By light. VOLYNKIN A.V., ČERNILA M., & NAKONECHNY A. N. leg.; 1 ♀, 13.VII.2009, Russia, Altai Republic, Kosh-Agach distr., 15 km NE of Tashanta vill., Chuya steppe, Zhalpakoboy hole, Yustyt river valley, steppe, 2300 m, VOLYNKIN A.V., ČERNILA M. & NAKONECHNY A. N. leg.; 1 ♂, 14.VII.2008, Russia, Altai Republic, Kosh-Agach district, Sailugem Range, 8 km ESE of Tashanta village, tundra-steppe, 2650 m. 49°42'N, 89°16'E. By light., VOLYNKIN A.V. & NAKONECHNY A. N. leg.; 2 ♂♂, 15.VII.2009, Russia, Altai Republic, Kosh-Agach district, 10 km WSW of Tashanta village, Bol. Shibety valley, Artemisia steppe. 2200 m, 49°40'N, 89°04'E. By light. VOLYNKIN A.V., ČERNILA M. & NAKONECHNY A. N. leg.; 3 ♂♂, 15.-16.VII.2010, W. Mongolia, Govi-Altai aimak, Hara-Adzragyn-Nurruu Range, Najivaryn-Sair river valley (under stream), 1700-2000 m, 45°52'N, 95°30'E, YAKOVLEV R.V. & GUSKOVA E. V. leg.; 1 ♀, 21.VII.2007, W. Mongolia, Bayan-Ulgij aimak, Kobdo-gol river valley 20 km SW Tsengel somon, 1800 m, Larix light forest on a steppe slope, YAKOVLEV R.V. & GUSKOVA E. V. leg. (coll. A. VOLYNKIN). Slides AV0410 ♂, AV0441 ♂, AV0442 ♂, AV0443 ♂, AV0449 ♂, AV0452 ♂, AV0453 ♂, AV0412 ♀.

**Diagnosis:** *Rhyacia schistochroa* VRG. (col. pl. 1: 13-18) is externally different from *Rh. junonia* (STGR.) (col. pl. 1: 7-12) by narrower and more parti-colored wings: medial and sometimes submarginal areas are rust-brown, when basal, marginal and, in some



specimens, submarginal ones are iron grey (the colouration of forewings in *Rh. junonia* (STGR.) is more monochroic - basal, medial and submarginal areas are generally one-coloured). ♂ genitalia of *Rh. schistochroa* VRG. (fig. 2) are different from those of *Rh. junonia* (STGR.) (fig. 3) with the shorter valve distally, the larger clasper, the shorter ventral spur, wide and massive basally, on the aedeagus [ventral spur of *Rh. junonia* (STGR.) is three times longer, narrow basally], the curved dorsal spur on the aedeagus [*Rh. junonia* (STGR.) has an almost straight dorsal spur] and the larger subbasal diverticulum. ♀ genitalia of *Rh. schistochroa* VRG. (fig. 4) are different from those of *Rh. junonia* (STGR.) (fig. 3) by a more strongly folded U-like antevaginal plate [the antevaginal plate is less folded, ♂-like in *Rh. junonia* (STGR.)], the wider ductus bursae posteriorly with much larger lateral diverticulum and larger signa in the corpus bursae.

**Distribution:** Siberian-Central Asian species. S. Siberia (Altai, Sayans), Mongolia, and, probably, NW China (Xinjiang).

**Note:** *Rhyacia schistochroa* VRG. among other taxa, considered as subspecies *Rh. junonia* (STGR.), is the closest in its genitalia morphology to *calamochroa* VARGA, 1973, described from Northern Afganistan (VARGA, 1973). Unfortunately, materials on the given taxa is not at our disposal, however, pictures, attached to the description „*Rh. junonia calamochroa* VRG.“ (VARGA, 1973), allow to designate its subspecific rank under the species *Rh. schistochroa* VRG.

Thus, the infraspecific structure of these sister species is as follows:

*Rhyacia junonia*

- ssp. *junonia* (STAUDINGER, 1881)
- ssp. *alaina* (STAUDINGER, 1888)
- ssp. *alexandrina* CORTI & DRAUDT, 1933

*Rhyacia schistochroa* stat. nov.

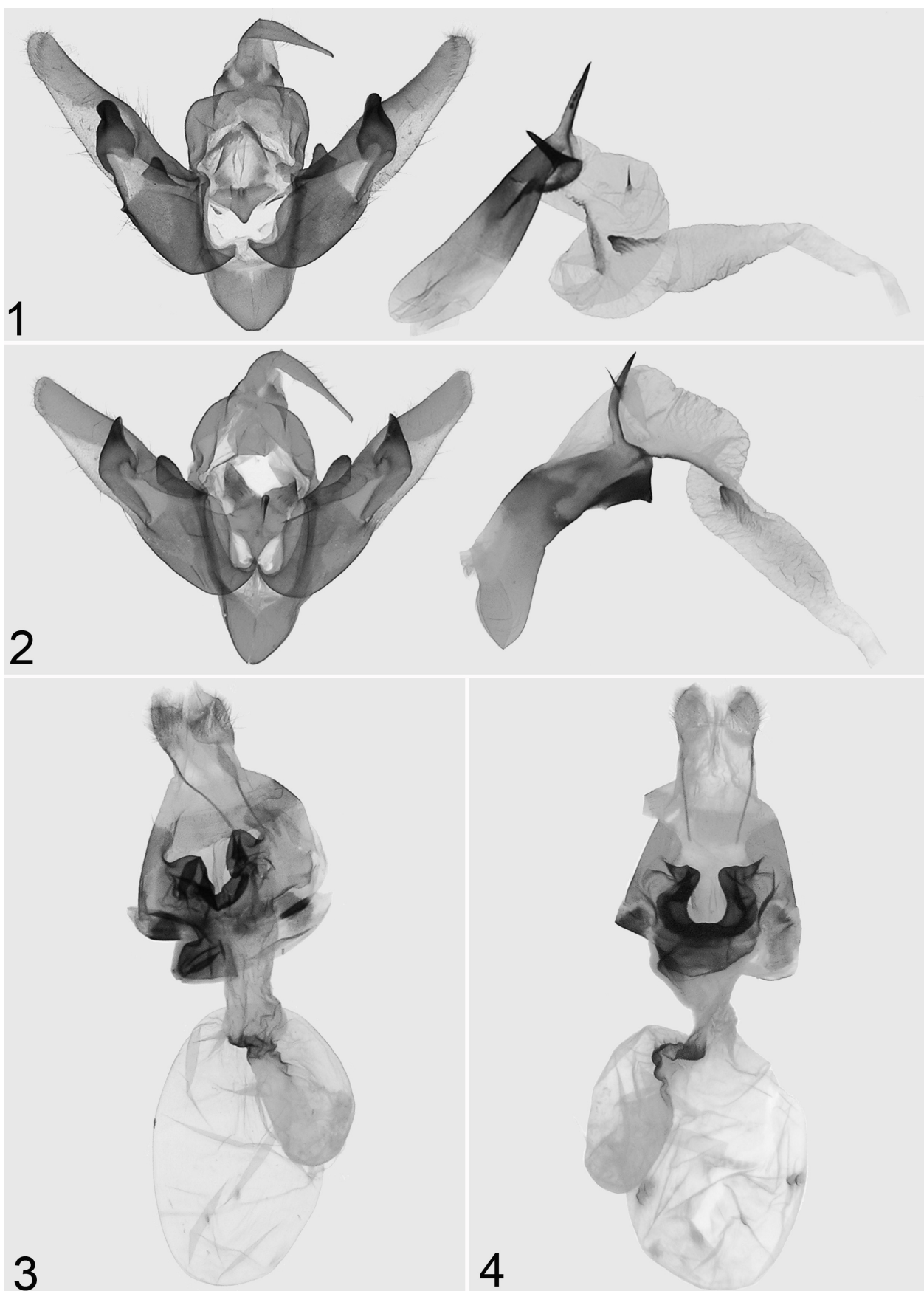
- ssp. *schistochroa* VARGA, 1973
- ssp. *calamochroa* VARGA, 1973 **comb. et stat. nov.**

## References

- FIBIGER, M. (1997): Noctuidae Europaeae 3: 1-418 (Noctuinae III). - Entomological Press, Sorø.
- GYULAI, P. & L. RONKAY (1999): The Noctuidae (Lepidoptera) material collected by two Hungarian expeditions to Mongolia in 1996 and 1997. - *Esperiana* 7: 687-713, Schwanfeld.
- KONONENKO, V.S. (2005): Noctuidae Sibiricae 1: 1-243 (An annotated Check list of the Noctuidae (s. l.) (Lepidoptera, Noctuoidea: Nolidae, Erebidae, Micronoctuidae, Noctuidae) of the Asian part of Russia and the Ural region). - Entomological Press, Sorø.
- LEHMANN, L. & A. BERGMANN (2005): The Noctuidae of Kyrgyzstan. A systematic and distributional list (Lepidoptera, Heterocera): 1-100. - Forst/Lausitz, Eisenhüttenstadt.
- STAUDINGER, O. (1881): Beitrag zur Lepidopteren-Fauna Central-Asiens. - Stettin. Ent. Z. 42: 393-424, Stettin.
- VARGA, Z. (1973): Neue Noctuiden von Zentralasien aus der Zoologischen Staatssammlung München und aus dem Naturwissenschaftlichen Museum Budapest. - Mitt. Münch. Ent. Ges. 63: 194-229, München.

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Figs.1-4: Genitalia of *Rhyacia* spp. 1: *Rhyacia junonia* (STAUDINGER, 1881), ♂, Altai Mts., Kuraisky Range, 7 km NE Aktash vill., Slide AV0409 VOLYNKIN. 2: *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♂, Altai Mts., Sailyugem Range, 8 km ESE Tashanta vill. env., Slide AV0441 VOLYNKIN; 3: *Rhyacia junonia* (STAUDINGER, 1881), ♀, Altai Mts., Kuraisky Range, 7 km NE Aktash vill., Slide AV0411 VOLYNKIN. 4: *Rhyacia schistochroa* VARGA, 1973 **stat. nov.**, ♀, Altai Mts., Chuya steppe, Yustyt riv. valley, Slide AV0412 VOLYNKIN.

## Two new species of Xyleninae GUENÉE, 1837 from the Altai Mountain Country

(Lepidoptera, Noctuidae)

by

ANTON V. VOLYNKIN

received 8.V.2011

**Abstract:** Two new species of Noctuidae, *Parastichtis guskovae* spec. nov. (W. Mongolia) and *Xylena czernilai* spec. nov. (Russian Altai) from the subfamily Xyleninae, tribe Xylenini, are described. The adults and ♂♂ and ♀♀ genitalia of the new and related species are illustrated.

**Introduction:** The author of the article together with his colleagues has made an active faunistic research in the Altai Mountain Country and discovered a number of noctuids, new for science. Two of them refer to the subfamily Xyleninae GUENÉE, 1837, tribe Xylenini GUENÉE, 1837, subtribe Xylenina GUENÉE, 1837, and are described below. The present article is based on the collection of author (AVB, Barnaul, Russia). All material was examined using modern dissection standards for preparation of ♂♂ and ♀♀ genitalia of Lepidoptera. Some type specimens are handed over to the Zoological Institute RAS (ZISP, St.-Petersburg, Russia). The depositary of the types of the new species is stated in the paragraphs "Type material".

Subfamily Xyleninae GUENÉE, 1837

Tribe Xylenini GUENÉE, 1837

Subtribe Xylenina GUENÉE, 1837

Genus *Parastichtis* HÜBNER, [1821]

*Parastichtis* HÜBNER, [1821], Verzeichniss bekannter Schmetterlinge: 213. Type-species: *Noctua suspecta* HÜBNER, [1817], by subsequent designation by GROTE, 1900: 212.

Synonymy (cited after FIBIGER & HACKER 2007): *Parastictus* AGASSIZ, 1847; *Dyschorista* LEDERER, 1857; *Taeniosea* GROTE, 1874.

### *Parastichtis guskovae* spec. nov. (figs. 1, 2, 5, 7; col. pl. 2: 1-4)

Holotype ♂, 11.VII.2010, W. Mongolia, Govi-Altai aimak, Dzhungarian Gobi, 15-20 km N of Alag-Nuur lake, Takhajchin-Gol river valley, 1300 m. 45°19'N, 94°28'E. YAKOVLEV R.V. & GUSKOVA E.V. leg. (coll. ZISP). Slide AV0421 VOLYNKIN.

Paratypes: 6 ♂♂, 5 ♀♀, with the same data, as the holotype (colls. ZISP, AVB). Slides AV0472 VOLYNKIN (♂), AV0447 VOLYNKIN (♀).

**Note:** The described taxon belongs to the holarctic genus, recently considered as monotypical (FIBIGER & HACKER, 2007). The similar situation occurs in the genus *Scoliopteryx* GERMAR, 1810. Its species *S. libatrix* (LINNAEUS, 1758) inhabits a vast holarctic area, whereas another species *S. aksuana* SHELJUZHKO, 1955 has been recorded as local from several valleys of Central Asia (MIKKOLA, 1983). The rank of the taxon given here, belongs to the genus *Parastichtis*, is rather debateable. However, despite being allopatric to the sister taxon *P. suspecta* (HÜBNER, [1817]) and absence of significant distinguishing characters in their ♂ genitalia, the taxon has considerable differences in morphology of the abdominal androconial hairbrushes, which proves its species rank, and not a subspecies one, as the morphology of the abdominal androconial hairbrushes are known to have important taxonomic character which has already been applied in systematics of the subfamilia Xyleninae (ZILLI & al., 2009; FIBIGER & al., 2010).

**Diagnosis:** The new species differs externally from the sister species *P. suspecta* (HBN.) (col. pl. 2: 5-8) by smaller size, more indistinct pattern and pale olive or brick-red ground colour of forewings, but the colouration of both taxa is rather variable and cannot be considered as a reliable diagnostic character. *Parastichtis guskovae* spec. nov. differs from *P. suspecta* (HBN.) by abdominal androconial hairbrushes (figs. 5, 6), which are presented with considerably longer hairs and the 'stalk'. The ♂ genitalia of *P. guskovae* spec. nov. (figs. 1, 2) differs from those of *P. suspecta* (HBN.) (figs. 3, 4) by the wider juxta, the wider and shorter cucullus, the more massive clavate ampulla [the ampulla of *P. suspecta* (HBN.) is apically rounded in some specimens, but not widened apically], the larger (in comparison with the size of the genitalia capsule) aedeagus, and the presence of three additional thorns on the large subbasal cornutus basis [*Parastichtis guskovae* spec. nov. (HBN.) bears only one additional thorn in some specimens]. The ♀ genitalia of *P. guskovae* spec. nov. (fig. 7) have a shorter membrane between 9-10<sup>th</sup> and 8<sup>th</sup> abdominal segments and shorter 8<sup>th</sup> abdominal segment than those of *P. suspecta* (HBN.) (fig. 8). Besides, apophyses anteriores are shorter, the ductus bursae is shorter and wider, the appendix bursae is laterally positioned and slightly longer [the appendix bursae in *P. suspecta* (HBN.) is shorter and ventrally overlies the ductus].

**Description of the imago** (col. pl. 2: 1-4): Wingspan 24-25 mm. Labial palps large, directed forward. ♂ antennae unilaterally ciliate; ♀ antennae simple. The colouration of the head, the thorax and the abdomen are variable, depending on the colouration of forewings. The forewing is relatively wide, triangular, acute apically. Ground colour of forewings varies from pale olive to pale red and brick-red. The pattern is poorly defined. Orbicular and reniform stigmata show the colour of the ground plan, white-bordered. Crosslines are slender, blackish, dentate, obscure. The marginal line is slender, blackish, interrupted. Cilia of the colour of the ground plan. The hindwing is brownish gray. The discal spot is dark, slender, crescent-shaped. Cilia are brownish gray, slightly paler than the wing colouration.

♂ **genitalia** (figs. 1-2): Uncus very long, narrow, apically pointed. Tegumen short; penicular lobes wide, trapezoid, dorsally pointed outwards. Vinculum short; saccus rounded more off, than at *P. suspecta* (HBN.), almost U-like. Juxta small, narrow, almost rectangular, it is slightly narrowed from top to bottom. Valva long and narrow. Costa strongly sclerotized; digitus narrow, ventrally directed, its pointed tip almost at ventral margin of valva. Cucullus large, with a long corona. Clasper with rounded tip. Ampulla massive, clavate, positioned oblique to the valva margins. Aedeagus almost straight, subapically curved ventrad. Vesica curved ventrad; subbasally on ventral side of vesica one short, broad-based cornutus with the three very small thorns on the same basis.

♀ **genitalia** (fig. 7): Ovipositor small. Membrane between the 9-10<sup>th</sup> and 8<sup>th</sup> abdominal segments, and the 8<sup>th</sup> segment itself very long. Apophyses posteriores narrow, very long. Apophyses anteriores long, narrow. Ostium bursae ventrally strongly sclerotized. Ductus bursae relatively short, moderately sclerotized. Corpus bursae pear-shaped, membranous; appendix bursae relatively short, laterally positioned.

**Distribution:** The species is known from the valley of the Takhajchin-Gol River in the eastern part of Dzungarian Gobi only.

**Derivatio nominis:** The species is named after the coleopterologist, the specialist on Chrysomelidae ELENA GUSKOVA (Chelyabinsk, Russia), one of the type series collectors.

#### Genus *Xylena* OCHSENHEIMER, 1816

*Xylena* OCHSENHEIMER, 1816, Die Schmetterlinge von Europa 4: 85. Type-species: *Phalaena Noctua exsoleta* LINNAEUS, 1758.

Synonymy (cited after KONONENKO & al., 1998 and RONKAY & al., 2001): *Xylites* REICHENBACH, 1817; *Xylaena* HÜBNER, 1822, missp.; *Xylina* TREITSCHKE, 1826, emend.; *Calocampa* STEPHENS, 1829; *Xsylvina* FRIVALDSZKY, 1835, missp.; *Hylina* FREYER, 1840, missp.; *Callicampa* AGASSIZ, [1847], emend.; *Colocampa* STICHEL, 1908, missp.; *Monoxylena* BECK, 1996.

#### *Xylena czernilai* spec. nov. (fig. 9; col. pl. 3: 1)

Holotype ♂, 18.-21.IX.2010, Russia, Altai Republic, Ongudai district, Belyi Bom village environs, bottom of slope with *Betula-Picea* forest, h=955 m. 50°22'N, 87°01'E. On wine-trap. ČERNILA M. & VOLYNKIN A. V. leg. (coll. ZISP). Slide AV0434 VOLYNKIN.

**Diagnosis:** The new species habitually resembles *X. exsoleta* (LINNAEUS, 1758) (fig. 11; col. pl. 2: 2), however its ♂ genitalia morphology is strongly different and the closest to *X. vetusta* (HÜBNER, [1813]) (col. pl. 3: 3-5). Externally *X. czernilai* spec. nov. differs from *X. exsoleta* (L.) by slightly wider forewings, a paler yellowish-gray colouration of the forewing and a better defined dark area near to the dorsum. Wider forewings and the pattern (the larger reniform stigma, the clearly defined elongate orbicular one, the larger dark spot outwards from the reniform stigma, the smaller shadowed area near to the dorsum) of the new species makes it to look quite different from *X. vetusta* (HBN.). ♂ genitalia of *X. czernilai* spec. nov. (fig. 9) are distinguished from those of *X. vetusta* (HBN.) (fig. 10) by the shorter and strongly widened apically spatulate uncus, the longer and less curved harpe, the acute triangular valve apically and the morphology of the vesica, which is characterized by the absence of the medial diverticulum with the cornutus, the larger non-sclerotized medial diverticulum laterally, the absence of the broad lateral diverticulum apically with the area of spinules on it, the presence of the long transverse clavate area of spinules. *Xylena czernilai* spec. nov. is different from the fourth inhabiting Altai congener *X. (Lithomoia) solidaginis* (HÜBNER, [1803]) (the genus *Lithomoia* was transferred to the genus *Xylena* as a subgenus by FIBIGER & al., 2010) (fig. 12; col. pl. 3: 6) in both, externally and genitalia morphology as well.

**Description of the imago** (col. pl. 3: 1): Wingspan 51 mm. Labial palps obliquely upturned. ♂ antennae fasciculate. The head, patagia and the abdomen are ochreous yellow. The thorax is dark, grayish brown. The forewing is narrow, elongate, with the yellowish gray ground colour. The medial cell and the submarginal area outwards from the cell are pale yellow. The costa has a deep dark suffusion. Orbicular and reniform stigmata are well-defined, elongate, dark-centered. The medial area is darkened intensely between the reniform stigma and the outer band. The submarginal area bears a long blackish spenoid streak, a pale yellowish strongly dentate submarginal line and several grayish brown dashes along its length opposite the reniform stigma. Outer and inner bands are unsmooth, blackish. The marginal line is slender, wavy, blackish. The outer margin of the forewing is wavy. Cilia are gray. The hindwing is yellowish brown, lightened and yellowish basally. Cilia are brownish yellow.

♂ **genitalia:** Uncus short, apically strongly dilated, spatulate. Tegumen short, broad, peniclar lobes wide. Vinculum short, V-like. Juxta wide, elongated, hexagonal. Valve elongated, distally tapering, costa heavily sclerotized. Cucullus trigonal, strongly setose, its apical and ventral angles pointed. Corona absent. Saccus strong, sclerotized. Clavus large, elongate-lobate, scobinate and setose. Harpe long, slender, apically pointed, rather S-shaped. Aedeagus short, thick, carina less well developed. Vesica spacious, inflated, its basal part very broad, globular; medial part broad, curved dorsally, with globular ventral apical diverticulum, lateral (on the left side) short diverticulum and long, narrow, club-like field of spinules; distal part narrow, tubular. ♀ **genitalia:** Unknown.

**Distribution:** The species is known from its type-locality in the central part of the Russian Altai.

**Derivatio nominis:** The new species is named after the lepidopterologist, and the author's friend Mr. MATJAZ ČERNILA (Kamnik, Slovenia), who collected the type specimens together with the author.

**Acknowledgments:** The author thanks Dr. VLADIMIR S. KONONENKO (Institute of Biology and Soil Science Far Eastern Branch of RAS, Vladivostok, Russia) for pictures of the ♂ genitalia of *X. exsoleta* (L.), and also for valuable suggestions; Dr. ALEXEY YU. MATOV (Zoological Institute RAS, Saint-Petersburg, Russia) for valuable suggestions; Dr. ROMAN V. YAKOVLEV (South Siberian Botanical garden, Barnaul, Russia) for valuable materials.

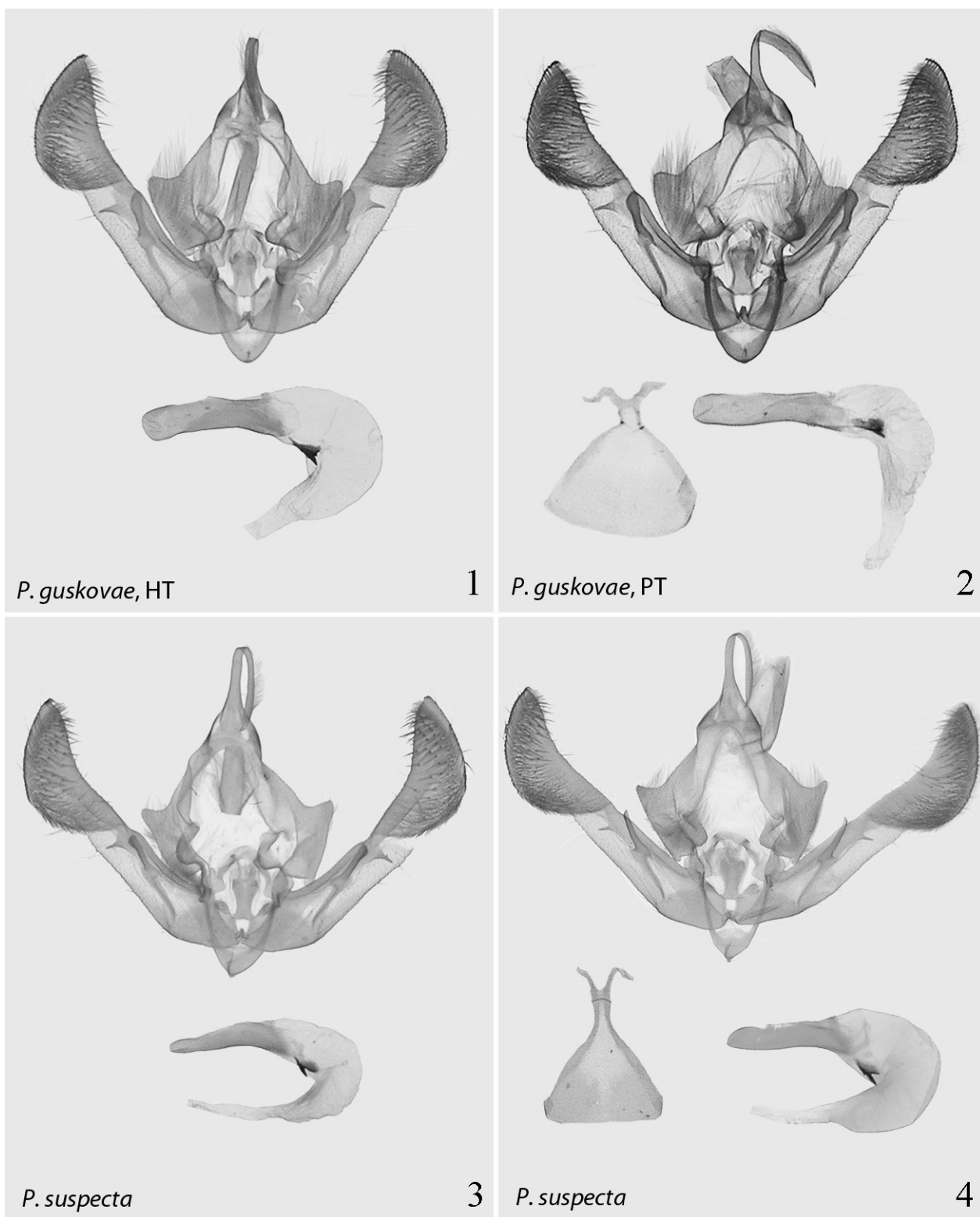
#### References

- FIBIGER, M. & H. HACKER (2007): Noctuidae Europaeae 9, Amphipyrae, Condicinae, Eriopinae, Xylinae (part). - Entomological Press, Sorø.
- FIBIGER, M., RONKAY, L., YELA, J. L. & A. ZILLI (2010): Noctuidae Europaeae 12: 1-451 (Rivulinae, Boletobiinae, Hypenodinae, Araeopterinae, Eublemminae, Herminiinae, Hypeninae, Phytometrinae, Euteliinae and Micronoctuidae). - Entomological Press, Sorø.
- KONONENKO, V. S., AHN, S.-B. & L. RONKAY (1998): Insects of Korea [3]: 1-509 [Illustrated catalogue of Noctuidae in Korea (Lepidoptera)]. - Korea.
- MIKKOLA, K. (1983): *Scoliopteryx aksuana* SHELJUZHKO, 1955 - a distinct species (Lepidoptera, Noctuidae). - Entomologica Scandinavica 14: 81-84, Helsinki.
- RONKAY, L., YELA, J. L. & M. HREBLAY (2001): Noctuidae Europaeae 5: 1-454 (Hadeninae II). - Entomological Press, Sorø.
- ZILLI, A., VARGA, Z., RONKAY, G., & L. RONKAY (2009): A Taxonomic Atlas of the Eurasian and North African Noctuoidea 3: 1-393 (Apameini I). - Heterocera Press, Budapest.

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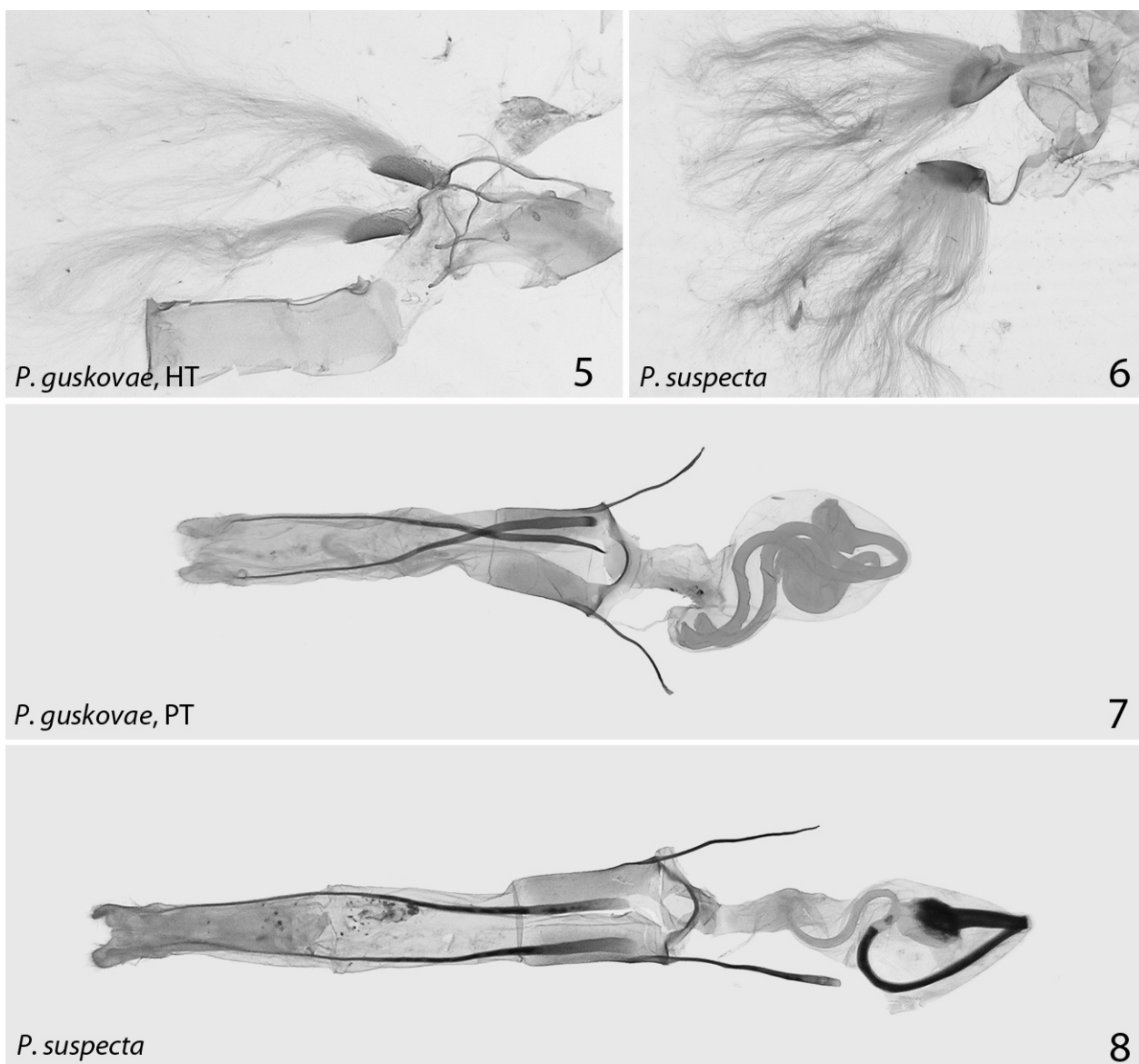
Figs. 1-4: *Parastichthis* spp., genitalia and tergite 8 of ♂.

Fig. 1: *Parastichthis guskovae* **spec. nov.**, holotype, W. Mongolia, Slide AV0421 VOLYNKIN.

Fig. 2: *Parastichthis guskovae* **spec. nov.**, paratype, W. Mongolia, Slide AV0472 VOLYNKIN.

Fig. 3: *Parastichthis suspecta* (HÜBNER, [1817]), W. Altai Mts., Slide AV0446 VOLYNKIN.

Fig. 4: *Parastichthis suspecta* (HÜBNER, [1817]), W. Siberia, Slide AV0422 VOLYNKIN.



Figs. 5-8: *Parastichtis* spp., abdominal brushes of ♂ and ♀ genitalia.

Fig. 5: *Parastichtis guskovae* **spec. nov.**, abdominal brushes of the holotype, W. Mongolia, Slide AV0421 VOLYNKIN.

Fig. 6: *Parastichtis suspecta* (HÜBNER, [1817]), abdominal brushes, W. Altai Mts., Slide AV0446 VOLYNKIN.

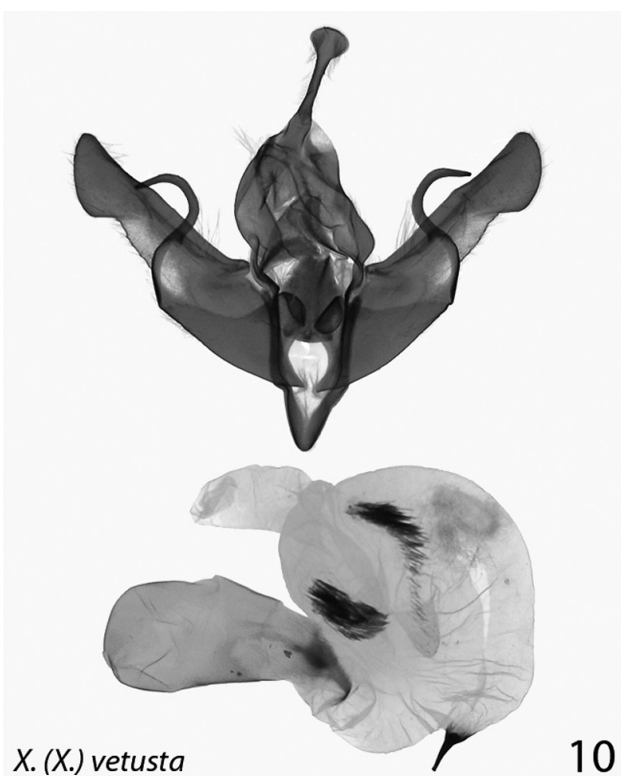
Fig. 7: *Parastichtis guskovae* **spec. nov.**, ♀ genitalia, paratype, W. Mongolia, Slide AV0447 VOLYNKIN.

Fig. 8: *Parastichtis suspecta* (HÜBNER, [1817]), ♀ genitalia, Central Altai Mts., Slide AV0469 VOLYNKIN.



*X. (X.) czernilai*, HT

9



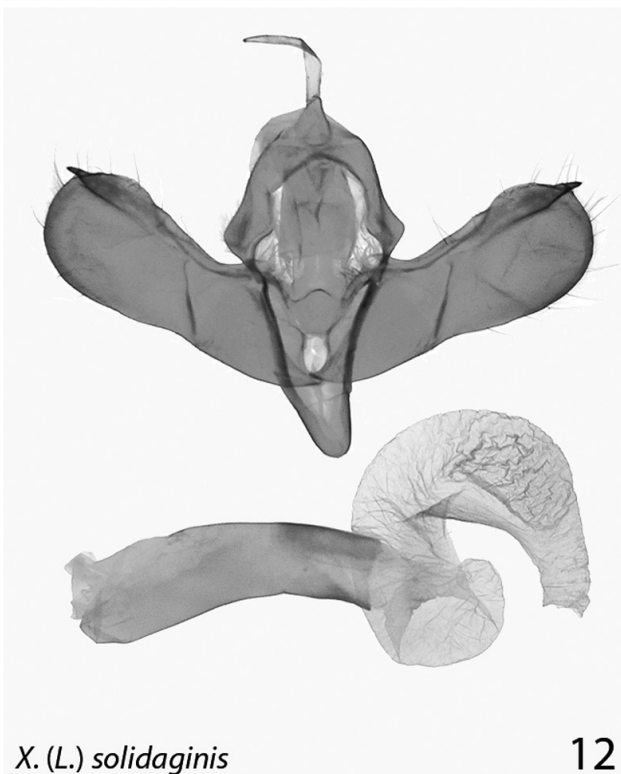
*X. (X.) vetusta*

10



*X. (X.) exsoleta*

11



*X. (L.) solidaginis*

12

Figs. 9-12: *Xylena* spp., ♂ genitalia.

Fig. 9: *Xylena (Xylena) czernilai spec. nov.*, holotype, Central Altai Mts., Slide AV0434 VOLYNKIN.

Fig. 10: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), W. Siberia, Slide AV0465 VOLYNKIN.

Fig. 11: *Xylena (Xylena) exsoleta* (LINNAEUS, 1758), Europe, photo by L. RONKAY & G. RONKAY (published by RONKAY & al., 2001).

Fig. 12: *Xylena (Lithomoia) solidaginis* (HÜBNER, [1803]), N. Altai Mts., Slide AV0478 VOLYNKIN.



## Colour plate 2

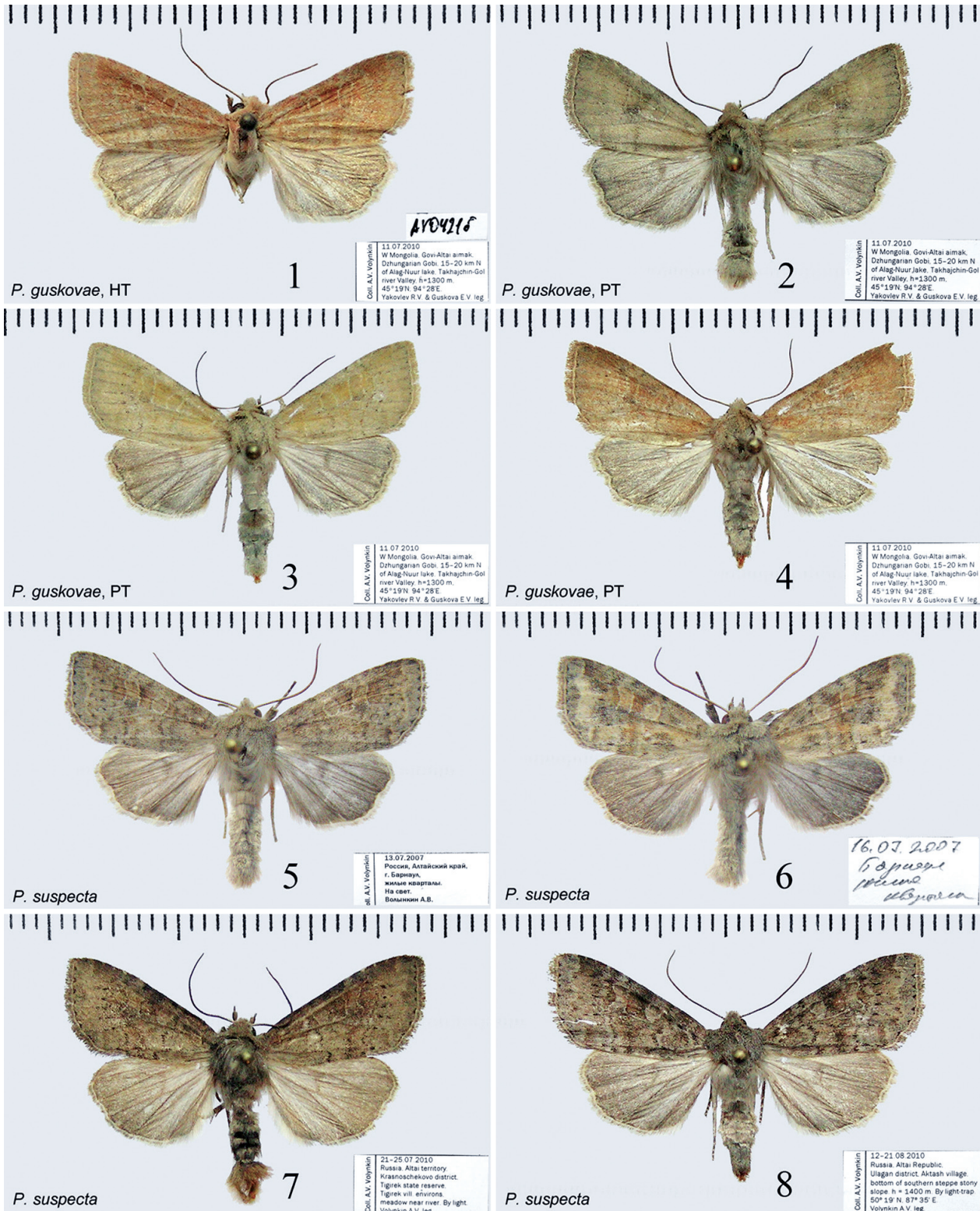


Fig. 1: *Parastichtis guskovae* spec. nov., holotype ♂, 11.VII.2010, W. Mongolia, Govi-Altai aimak, Dzhungarian Gobi, 15-20 km N of Alag-Nuur lake, Takhajchin-Gol river valley, 1300 m. 45°19'N, 94°28' E. YAKOVLEV R.V. & GUSKOVA E. V. leg." (coll. ZISP).

Fig. 2: *Parastichtis guskovae* spec. nov., paratype ♂, same locality (coll. AVB).

Fig. 3: *Parastichtis guskovae* spec. nov., paratype ♀, same locality (coll. AVB).

Fig. 4: *Parastichtis guskovae* spec. nov., paratype ♀, same locality (coll. ZISP).

Fig. 5: *Parastichtis suspecta* (HÜBNER, [1817]), ♂, 13.VII.2007, Russia, W. Siberia, Altai terr., Barnaul. VOLYNKIN A. V. leg. (coll. AVB).

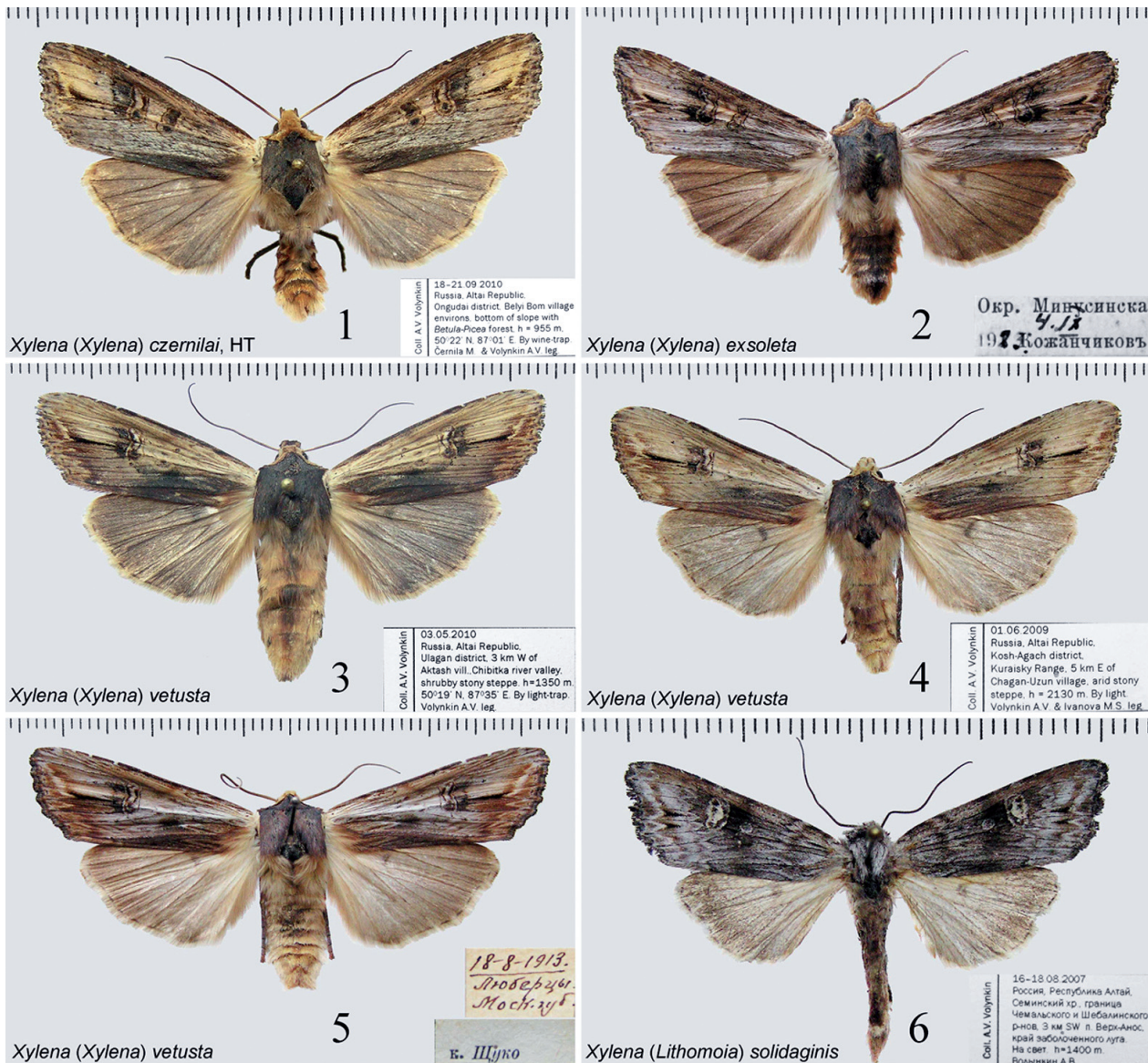
Fig. 6: *Parastichtis suspecta* (HÜBNER, [1817]), ♂, 16.VII.2007, same locality [coll. AVB].

Fig. 7: *Parastichtis suspecta* (HÜBNER, [1817]), ♂, 21.-25.VII.2010, Russia, Altai terr., Krasnoshchekovo distr., Tigirek state reserve, Tigirek vill. env., meadow near river. On light, VOLYNKIN A. V. leg. (coll. AVB).

Fig. 8: *Parastichtis suspecta* (HÜBNER, [1817]), ♀, Russia, Altai Rep., Ulagan distr., Aktash vill. env., bottom of southern steppe stony slope, h=1400 m, on light-trap. 50°19' N, 87°35' E. VOLYNKIN A. V. leg. (coll. AVB).



### Colour plate 3



- Fig. 1: *Xylena (Xylena) czernilai* spec. nov., holotype ♂, 18-21.IX.2010, Russia, Altai Republic, Ongudai district, Belyi Bom village environs, bottom of slope with Betula-Picea forest, 955 m. 50°19'N, 87°01'E. On wine-trap. ČERNILA M. & VOLYNKIN A. V. leg. (coll. ZISP).
- Fig. 2: *Xylena (Xylena) exsoleta* (LINNAEUS, 1758), ♂, [S. Siberia, Khakassia Rep.] Minusinsk env., 4.IX.1923, KOZHANTSCHIKOV leg. (coll. ZISP).
- Fig. 3: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), ♂, Russia, Altai Rep., Ulagan distr., 3 km W. Aktash vill. Chibitka river valley, shrubby stony steppe, 1350 m, on light-trap. 50°19'N, 87°35'E, VOLYNKIN A. V. leg. (coll. AVB).
- Fig. 4: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), ♂, 1.VI.2009, Russia, Altai Rep., Kosh-Agach distr., Kuraisky Range, 5 km E. of Chagan-Uzun vill., arid stony steppe, 2130 m, on light, VOLYNKIN A. V. & IVANOVA M. S. leg. (coll. AVB).
- Fig. 5: *Xylena (Xylena) vetusta* (HÜBNER, [1813]), ♂, 8-8-1913, Lyubertsy, Mosk. gub./K. STCHUKO [leg.] (coll. ZISP).
- Fig. 6: *Xylena (Lithomoia) solidaginis* (HÜBNER, [1803]), ♂, 16-18.VIII.2007, Russia, Altai Rep., Chermal distr., Seminsky Range, 3 km SW Verkh-Anos vill., meadow/swamp border, on light, 1400 m, VOLYNKIN A. V. leg. (coll. AVB).